

AMENDMENTS TO THE CLAIMS(IN FORMAT COMPLIANT WITH THE REVISED 37 CFR 1.121)

1. (CURRENTLY AMENDED) An apparatus comprising:

an AND plane configured to generate a product term in response to a plurality of product term inputs; and

a polarity-switch plurality of product term input  
5 circuits each configured (i) to receive an input signal and (ii) to  
generate one of said plurality of product term inputs, wherein each  
of said plurality of product term input circuits comprises  
comprising (i) a first memory cell directly connected to an input  
terminal of a first transmission gate and (ii) a second memory cell  
10 directly connected to an input terminal of a second transmission  
gate, wherein (i) an output terminal of said first transmission  
gate is connected to an output terminal of said second transmission  
gate, (ii) said input signal of said polarity-switch is presented  
to a first control terminal of said first transmission gate and a  
15 first control terminal of said second transmission gates gate and  
(iii) said product term input an output of said polarity switch is  
configurable in response to contents of said first memory cell and  
said second memory cells cell to present either (i) a signal that  
varies in response to said input signal or (ii) a predetermined  
logic level that is independent of said input signal.

2. (CURRENTLY AMENDED) The apparatus according to claim 1, wherein each of said first transmission gate and said second transmission gates gate further comprise a second control terminal configured to receive a complement of said input signal.

3. (CURRENTLY AMENDED) The apparatus according to claim 1, wherein said first memory cell and said second memory cells cell comprise a first configuration bit and a second configuration bit, respectively, of said apparatus.

4. (CURRENTLY AMENDED) The apparatus according to claim 1, wherein an said output terminal of said first transmission gate and an said output terminal of said second transmission gate are connected to an input of said output-of-said-polarity-switch AND  
5 plane.

5. (CURRENTLY AMENDED) The apparatus according to claim 1, wherein said input signal comprises an input term and said output is configured to present a product term input.

6. (CURRENTLY AMENDED) An apparatus comprising:  
an AND plane configured to generate a product term in response to a plurality of product term inputs.

a first circuit configured to present a first value  
5 stored in a first memory cell to ~~an input node as one of said~~  
plurality of product term inputs in response to a first state of an  
input signal; and

a second circuit configured to present a second value  
stored in a second memory cell to ~~an input node as said one of said~~  
10 plurality of product term inputs in response to a second state of  
said input signal, wherein said first and said second stored values  
are programmable during configuration of said apparatus.

7. (CURRENTLY AMENDED) The apparatus according to claim  
6, wherein:

~~said first and second circuits each comprise circuit~~  
~~comprises a first transmission gate configured to couple said first~~  
5 ~~and second memory cells coupled cell~~ to an input terminal of said  
AND plane;

~~a first and a~~ said second circuit comprises a second  
transmission gates, respectively, gate configured to couple said  
second memory cell to said input terminal of said AND plane; and  
10 said input signal is coupled to a control terminal of  
said first and said second transmission gates.

8. (CURRENTLY AMENDED) The apparatus according to claim 7, wherein each of said first transmission gate and said second transmission gates gate comprise a CMOS transistor pair.

9. (CURRENTLY AMENDED) The apparatus according to claim 7, wherein:

said first and ~~second-circuits circuit~~ further comprise ~~comprises~~ a first CMOS inverter and ~~a second CMOS inverter~~ coupling said first and ~~second memory cells cell~~ to said first and second transmission gates gate, and

said second circuit further comprises a second CMOS inverter coupling said second memory cell to said second transmission gate.

10. (CURRENTLY AMENDED) The apparatus according to claim 7, wherein ~~said output of said apparatus presents product term input comprises~~ (i) a predetermined logic level when said first and said second memory cells ~~of said first and said second circuits~~ contain the same data and (ii) a signal that varies in response to said input signal when said first and said second memory cells contain different data.

11. (ORIGINAL) The apparatus according to claim 10, wherein said data comprises configuration bits.

12. (CURRENTLY AMENDED) The apparatus according to claim 7, wherein said first memory cell and said second memory cell are configured to source and sink a current.

13. (CURRENTLY AMENDED) The apparatus according to claim 6, wherein said apparatus comprises ~~a product term input circuit of~~ a programmable logic device.

14. (CURRENTLY AMENDED) ~~An AND plane of a programmable logic device comprising one or more~~ The apparatus according to claim 6 further comprising:

a group of gates configured to generate a sum-of-products term in response to a plurality of product terms, wherein said AND plane is further configured to generate said plurality of product terms.

15. (PREVIOUSLY AMENDED) The apparatus according to claim 6, wherein said input signal comprises an input term.

16. (CURRENTLY AMENDED) The apparatus according to claim 15, wherein said apparatus product term input is programmable to present as any of (i) said input term, (ii) a digital complement of said input term, and (iii) a predetermined logic level to said input node.

17. (PREVIOUSLY AMENDED) The apparatus according to claim 16, wherein said predetermined logic level is selectable from a digital 0 and a digital 1.

18. (CURRENTLY AMENDED) A method for providing a product term input of a programmable logic device comprising the steps of:

(A) presenting a first value stored in a first memory cell to an input node of an AND plane via a first transmission gate in response to a first state of an input signal; and

(B) presenting a second value stored in a second memory cell to said input node of said AND plane via a second transmission gate in response to a second state of said input signal, wherein said first and said second stored values are programmed during configuration of said programmable logic device.

19. (PREVIOUSLY AMENDED) The method according to claim 18, wherein said input signal comprises an input term of a logic block of said programmable logic device.

20. (CURRENTLY AMENDED) The method according to claim 18, further comprising the steps of:

(C) generating a first logic level at said input node in response to said first and said second stored values being programmed with a first value;

(D) generating a second logic level at said input node in response to said first and said second stored values being programmed with a second value;

(E) generating a signal at said input node that has a state similar to said control input signal in response to said first stored value being programmed with said first value and said second stored value being programmed with said second value; and

(F) generating a signal at said input node that has a state similar to a digital complement of said control input signal in response to said first stored value being programmed with said second value and said second stored value being programmed with said first value.